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Real Analytic Singularities in Complex Geometry

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Abstract

During the 1960s there was a rich interplay between manifolds theory and the topology of complex singularities, leading to a deeper understanding of both of these areas of mathematics. A keystone for this was Milnor's fibration theorem. This result gives important information about the topology of holomorphic map-germs, and it also plays a fundamental role for studying the topology of the link, as well as for applications to foliations theory, open-book decompositions, knots theory and contact geometry. In this talk we make a quick review of Milnor's theorem in the classical setting of holomorphic mappings, with a new viewpoint that lends itself to generalizations for real singularities, and then move forward to explaining some analogous questions and known results, for families of real analytic map-germs that arise in complex geometry. We also discuss how these ideas may yield to new insights into the geometry and topology of manifolds.